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SCIENCE NEWS LETTER

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THE WEEKLY SUMMARY OF CURRENT SCIENCE •

MAY 16, 1936

Longest-Lived Insect

See Page 315

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Edited by WATSON DAVIS

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DO YOU KNOW?

Highway planning surveys are to be made by 32 states.

In the days of Augustus Caesar, a tutor to Roman princes made an encyclopedic dictionary as a reference work.

By counting bird feathers, a naturalist has found that birds "dress" for the season, wearing more feathers in cold weather.

Tropical orchids almost always grow in tops of high trees, but the orchids are not parasites.

At the New York Zoo, recently, an Indian cobra died, evidently from the poisonous bite of an African cobra which was seen to attack it.

Japanese walnut trees, planted experimentally in Connecticut, grow faster than English walnut, are hardy, make fine shade trees and produce small but good nuts.

Chisels of iron found in Tutankhamen's tomb were not ordinary tools, according to one theory, but were magical tools for opening the mouth of the dead king.

It is estimated that not two lepers in a hundred are in the institutions for care of leprosy throughout the world.

To introduce a color note into restaurants, neon tubes are being used to stir certain beverages, such as soft drinks.

Forest Service engineers find they can make strong and lightweight relief model maps from the stuff that model ladies in store windows are made of.

A building of peculiar architecture, with eight towers, is being erected in Moscow to house the most important state archives of the Soviet Union.

To patch up minor scratches and marks on automobiles, a company has produced a special decalcomania, or transfer material, in standard colors in tape form.

According to records in Sydney, an Australian whaling vessel, the *Venus*, ventured beyond 72 degrees south latitude in the South Polar region of the Ross Sea nine years before explorer James Ross made his famous voyage in the eighteen forties.

WITH THE SCIENCES THIS WEEK

Most articles are based on communications to Science Service or papers before meetings, but where published sources are used they are referred to in the article.

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MEDICINE

Bring on Attacks of Angina For Test of Treatment

Sedative Drugs Producing Unconsciousness Interfere With Rhythm of Brain Waves, Scientists are Told

CLIMBING up and down a two-step stoop, while a physician holds a stop-watch, until the exertion induces an attack of angina pectoris: This is the heroic-sounding method by which the effect of various medicines was tested on patients suffering from this dreaded form of heart disease.

Ratings of fifteen different medicines obtained from such tests and also by clinical observation were reported by Drs. Joseph E. F. Riseman and Morton G. Brown of Beth Israel Hospital, Boston, at the Kansas City meeting of the American Society for Clinical Investigation. The patients, it should be noted, did not suffer permanent harm from the test, but were promptly helped to quick recovery from the exertion-induced attacks. The test, besides giving an indication of the effect of medication on the disease, has also proved a help to diagnosis, occasionally enabling Dr. Riseman to rule out angina pectoris as the cause of symptoms from which the patient complained.

About one-third of the patients failed to benefit from any of the 15 different drugs used, Dr. Riseman reported. Nitroglycerine given prophylactically enabled about two-thirds of the patients to undertake about 100 per cent more exercise before an angina attack was induced. In several cases this medicine, taken in a dose of 1/500 grains every hour, rendered the patients free of attacks in daily life.

Study Heart Failure

Heart failure is "a great rarity" in pneumonia, apart from cases in which the patient already had an injured heart before the pneumonia attack. This discovery, which is important in connection with the treatment of pneumonia, was reported by Dr. Arthur M. Fishberg of New York City at the meeting. Researching with Dr. Fishberg were Drs. W. M. Hitzig, F. H. King and J. G. M. Bullowa of New York City.

The discovery was made by what might literally be called a "sweet test" for measuring how fast the blood flows in the human body. This test, devised by Drs. Fishberg, Hitzig and King, consists in injecting saccharin into an arm vein of the patient to be tested and having him announce when he detects a sweet taste in the tongue.

"This measures the time it takes the blood to flow from the arm vein to the right side of the heart, through the lungs, and then to the tongue," Dr. Fishberg explained. "In health, this interval is between 9 and 16 seconds, while if the heart is weak the interval is as much as 60 seconds, depending on the severity of the heart failure. In the present investigation this procedure was applied to pneumonia, to see how often the heart fails in this common disease."

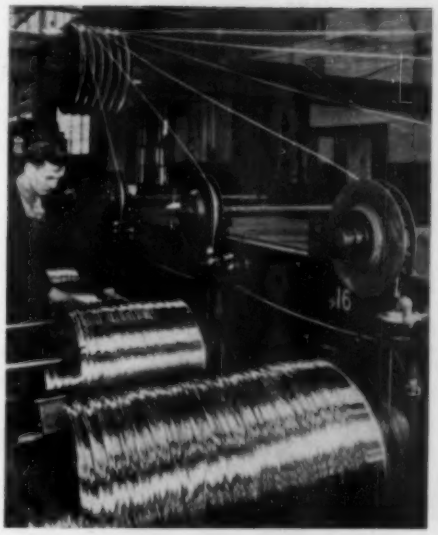
The much-dreaded edema (watery swelling) of the lungs in pneumonia is not due to heart failure, Dr. Fishberg and colleagues also found. Instead it is probably due to certain changes in the capillary blood vessels of the lungs.

Drugs Change Brain Waves

Drugs which interfere with consciousness produce "profound" changes in the electrical activity of the brain, Dr. W. G. Lennox and Dr. and Mrs. F. A. Gibbs of Harvard University Medical School reported.

A comparison with automobile spark plugs was used by Dr. Lennox in an informal explanation of these changes, which were found by means of apparatus which makes a continuous written record of the electrical currents taken simultaneously from four different regions of a person's head. These records, popularly called "brain waves," are known scientifically as electroencephalograms and are akin to the electrocardiagram which has aided greatly in the understanding of disorders of the heart. Electroencephalograms are expected in the same way to help unravel many knotty problems of nervous and mental diseases.

The Harvard investigators studied the effect of some 20 drugs on these brain currents. When sedative drugs of a type interfering with consciousness were given, the electrical rhythms became much slower and (*Turn to page* 312)



NEW LUSTER

The use of dies for polishing and densifying zinc-coated wire gives it a mirror-like finish under a new electrolytic process for producing a rust-resistant product.

METALLURGY

New Zinc Coatings for Wire Are Perfected

PRODUCTION of a new type of zinc-coated wire by an electrolytic process was started before a convocation of editors, metallurgists, and rural economics professors at the Cambria Plant of Bethlehem Steel Company, Johnstown, Pa. The occasion was the opening of the new unit for the bethanizing process.

The characteristics of this process, as compared with the customary method of dipping wire in molten zinc, include the production of zinc to a purity of 99.9975 per cent to increase its resistance to oxidation as well as its ductility; the use of a new pickling method for cleaning the steel wire core, using a fused salt such as sodium hydroxide; and the employment of a 40,000 ampere homopolar generator set, which is a complete breakaway from tradition.

Another new development is the use of dies for polishing and densifying the zinc coating which gives the wire a mirror-like chromium type finish.

The initial applications of bethanized wire are in farm fence, where it has advantages because of its highly polished appearance and resistance to rust. Developments are going forward, however, in adapting the product for telephone wire, window screening, spokes and other applications where the zinc wire has hitherto not been feasible.

From Page 311

of much higher voltage, "big ocean swells replacing pool ripples."

"The alteration," Dr. Lennox explained, "probably means that various clusters of cells in the brain are discharging electricity simultaneously and not, as normally, in rapid sequence. An automobile whose six or eight spark plugs 'sparked' simultaneously would not run. Just so the most profound changes in the rhythm of the discharging centers of the brain were attended by unconsciousness.

"This method of graphic recording of electrical brain rhythms may be useful during operations as a means of informing the surgeon of the depth of the anaesthesia.

"The observations also reveal the manner in which anti-epileptic drugs prevent or break up the electrical rhythms associated with the unconsciousness of epileptic seizures."

Physicians Hurt Themselves

Deliberately inducing pain in themselves by injuring the skin with irritants and by injecting strong salt solution under the skin, two physicians of the University of Pennsylvania School of Medicine studied the effect of counter-irritants, such as heat and cold, commonly used to relieve pain. Results of the studies, made by Drs. George D. Gammon and Isaac Starr, were reported.

The other two counter-irritants used were electrical and mechanical agents. The effectiveness varied greatly in the two types of pain. Heat, for example, relieved pain from salt injection but increased that due to skin injury. Rhythmically applying and removing the counter-irritant for brief intervals relieved severe pain which constant application of heat or other counter-irritant could not relieve. Periodic electrical stimulation was found a convenient method for doing this. The net result of the counter-irritation, whatever the method of applying it, seemed to depend both on changes of tissue temperature and alteration in the blood supply.

The physicians were also able, by a special technique, to listen in on pain messages from nerves to the brain and spinal cord. These messages were obtained from sensory nerves of anesthetized animals. This method showed the changes in the nerves which occurred in response to counter-irritation and which informed the brain of changes in pain in the injured tissues.

UNDISPUTED LEADER

The unicorn of scientific reality follows in the steps of his mythical forerunner in being a creature of calm assurance, unchallenged power and tolerant disposition.

ZOOLOGY

Unicorn No Longer Fabulous; Biologist Has Produced One

By DR. FRANK THONE

UNICORNS no longer belong wholly in the doubtful twilight of mythology, where dwell griffins, dragons, and such-like fabulous beasts. There is a live unicorn right here in the U. S. A. of this modern year 1936. Nor is he under the suspicion and ban of science; quite the contrary, science is responsible for his existence. (*Scientific Monthly*, May.)

The 1936 model unicorn was produced by Dr. W. Franklin Dove, biologist at the University of Maine, through a rather simple surgical operation on the head of a day-old bull calf. By transplanting both horn buds, or little knots of tissue that normally produce a pair of horns, to a close side-by-side position at the center of the calf's browridge, Dr. Dove induced the growth of a single very massive horn, that has proved to be a most efficient weapon. Indeed, so much more successful has it been than the usual two horns that its proud possessor has undisputed domination over his companion cattle, and has developed much of the proud yet unaggressive bearing and disposition ascribed to the unicorn of fable.

The operation by which Dr. Dove's bull calf was enabled to become a unicorn was similar to some of the tissue transplantations used in plastic surgery on human beings, to remedy the disfiguring loss of a nose or other facial feature. When the horn buds were cut loose from the young animal's skull, a strip of skin and underlying flesh was left attached to each one, to carry the normal blood supply until the transplanted beginnings of horns could take hold on the spot where he planted them. Also, since the horn buds are circular, Dr. Dove cut their adjacent edges flat, so that he could set them close together, and so encourage the growth of a single horn mass.

The Maine unicorn is now about two and one-half years old, a splendid young animal of the Ayreshire breed. He is strong, fearless, well able to fight though seldom doing so. His biological

"inventor" holds that his marked docility is due largely to the fact that the unicorn knows his own strength and the superiority in combat that his single weapon gives him; full self-confidence has done away with truculence.

Dr. Dove has searched the literature of unicorn lore, which is both ancient and voluminous. He is strongly inclined to believe that earlier peoples anticipated him in his unicorn-making surgery, and that they produced leader animals for their herds in this way. One passage in Pliny, noted naturalist of Roman times, indicates that ancient herdsmen operated on the horn buds to produce multiple-horned beasts. Other more modern references indicate that shepherds in the Himalayan state of Nepal made unicorns of rams, and that two African peoples knew the secret of unicorn cattle.

Everywhere in ancient literature, both Biblical and classic, the unicorn is credited with great strength, great nobility, and great independence. He is always the leader of the beasts. His single horn, tipped with red or black, is the symbol and source of his power. He rules the others with it; he dips it into pools of undrinkable water and takes away the poison. Yet he is gentle, so that he will obey even a young girl. Later legend stressed this point, until it was claimed that only a virgin could tame a unicorn.

The unicorn is mentioned three times in the Old Testament, always in terms of high esteem. Indeed, the first reference, in the Book of Numbers, likens the unicorn even to God. Balaam, the heathen prophet who ran full tilt into the power of Jehovah, and of course got the worst of it, reported back to his king: "He hath as it were the strength of an unicorn!"

Dr. Dove's own bovine unicorn, and his belief that similar animals were formerly created in numbers as herd leaders, receives apparent Scriptural support in the book of Job. God asks his sick and complaining servant:

"Canst thou bind the unicorn with his band in the furrow? or will he harrow the valleys after thee? . . .

"Wilt thou believe him, that he will bring home thy seed, and gather it into thy barn?"

Such farm work was ox-work, and not to be demanded of the proud herd leader.

There is another story, not in the Bible but in the Jewish Talmud, about Adam sacrificing a "unicorn" to God. As Dr. Dove interprets this legend, it may well signify that Adam offered up absolutely the most valuable thing that he possessed, the finest sire in his herd.

The strange unicorn of heraldry appears to be a late invention, compounded of several animals, presumably to symbolize his several high nobilities: head, neck, and legs of the horse; hoofs and beard of the goat. The single twisted horn sprouting from the middle of his forehead was rather like that of a straight-horned antelope, or perhaps the nose-horn of a narwhal, which is a porpoise-like sea creature.

This creature of the later Middle Ages did not attain his proud position on the English coat-of-arms until the Scottish-born James I put it there. So that "the lion and the unicorn, a-fighting for the crown" have been the property of nursery children only since the time when Shakespeare, a portly, baldish, middle-aged retired playwright, lived out his sunset days in his native Stratford-upon-Avon.

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NOT MYTHICAL NOW

A scientist has created this true unicorn and lifted this creature of fabulous virtues from the pages of legend into the world of modern reality.

A MYTHICAL BEAST

The traditional unicorn of heraldry was a composite animal made up of the virtues of several different animals.

BACTERIOLOGY

Neglected Lowly Plants Source of Soil Wealth

ONE-CELLED green plants of the class known as algae, usually neglected in studies of soil fertility, are an indispensable factor in making the soil productive, is the claim of Prof. Rudolf Gistl, of the Munich Technical School. In certain types of soil, Prof. Gistl says, these lowly plants are the chief source of energy-food for the nitrogen-fixing bacteria that enable profitable crop plants to grow.

Prof. Gistl even envisages the possibility of making sterile soils fertile by inoculating them with proper mixtures of algae and nitrogen-fixing bacteria.

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MEDICINE-PHYSIOLOGY

Successful Gland Transplant Made in Addison's Disease

Meeting of Association for the Study of Internal Secretions Hears of New Research on Gland Functions

SUCCESSFUL transplantation of a woman's adrenal gland tissue into a man suffering from dreaded Addison's disease restored his health and prolonged his life for eight months.

This latest medical achievement was reported by Dr. Max A. Goldzieher, of New York City, at the meeting of the Association for the Study of Internal Secretions in Kansas City. Associated with Dr. Goldzieher in this case were Dr. H. Koster, of Brooklyn, N. Y., and Drs. F. A. Hemsath and S. B. Barishaw of Jersey City, N. J.

The results in this case, Dr. Goldzieher said, seem to prove the value of gland transplantation in the treatment of Addison's disease. This condition, characterized by bronze skin color, extreme weakness and wasting, is due to disease, injury or destruction of the cortex of the adrenal glands which lie one above each kidney. Heretofore the most successful treatment of the disease has been with extracts of adrenal gland cortex, which help the patients somewhat as insulin helps diabetics.

Transplanted Tissue

The transplanted tissue was taken from the cortex of an adrenal gland removed from a woman whose symptoms of virility showed her adrenal glands were over-active, producing too much cortical hormone. When the patient died, eight months after the transplantation, it was found that his own adrenal glands had no cortex tissue at all, but that the transplanted tissue was well-preserved.

The patient had been treated for three years before the gland transplantation with various brands of cortical extract, with some improvement. But he still showed signs of Addison's disease, such as the skin color and low blood pressure and low blood sugar.

Within ten days after the gland transplantation, he left the hospital visibly improved, with higher blood pressure, more strength and less skin discoloration. Injections of pituitary gland extract were given to stimulate the activity of the transplanted adrenal gland tissue. Except for one sudden attack of weakness, from which he recovered after two weeks' hospital treatment, he did very well. He felt perfectly normal, was able to work, and lost the bronze skin color entirely. He died suddenly eight months after the transplantation.

Prevents Self-Poisoning

How the adrenal glands keep the body from poisoning itself with a normal and necessary constituent of its own cells was disclosed at the same meeting.

The automatic antidote-like action of the glands was discovered in research on cats, guinea pigs, rats and mice conducted by Drs. Raymund L. Zwemer and Richard Truszkowski of Columbia University College of Physicians and Surgeons.

Potassium is the substance with which the body would poison itself if it were not for the action of the cortex of the adrenal glands. Discovery of this role of the glands suggests a new step in treatment of Addison's disease which is due to lowered activity of the cortex of these glands. The discovery was made possible by the development of a method for determining potassium in very small amounts of blood.

It is well known, Dr. Zwemer explained, that potassium is toxic if an excess is present in the fluid part of the blood, yet 20 times the amount normally present in blood plasma may be present in the cells of the body with no harmful effects. The adrenal glands play an important role in regulating the level of potassium in the blood, the studies reported show.

A diet low in amount of potassium salts should be important in treating Addison's disease, Dr. Zwemer said. A high level of blood potassium has been reported in this condition. Furthermore, Drs. Zwemer and Truszkowski found that animals suffering from underactive adrenal gland cortex died when given in their food small amounts of potassium which were harmless to normal animals.

Shock, auto-intoxication, asthma and fatigue are also associated with high blood potassium and have been successfully treated with adrenal gland cortex extracts. These extracts would seem, as a result of the present report, to be useful in treating a number of other diseases in which high blood potassium has been reported.

Protect Against TB

Extracts of adrenal gland cortex help protect the body against tuberculosis, at least in the case of guinea pigs. Drs. F. M. Pottenger, Jr., and J. E. Pottenger of the Pottenger Sanatorium, Monrovia, Calif., reported studies showing this protective action in guinea pigs. Besides the evidence from the guinea pig studies, the Pottengers found that children who had been given adrenal gland hormones for asthma lost sensitivity to tuberculin. This is a substance produced by the tuberculosis germs and when these germs infect the body, the body becomes sensitive to tuberculin. Loss of this sensitivity after doses of adrenal hormones suggests, the Pottengers believe, that there is a relation between the hormones produced by the adrenal glands and specific defense of the body.

Bearded Lady Refeminized

The first operation on the pituitary gland performed in the hope of refeminizing a bearded lady was reported by Dr. H. Lisser of the University of California Medical School.

Similar operations have been performed for the removal of adrenal gland tumors which had been the cause of virilism.

The operation was successful for the first year. The patient lost her beard and other symptoms of the pituitary disorder from which she suffered following removal of part of the pituitary gland.

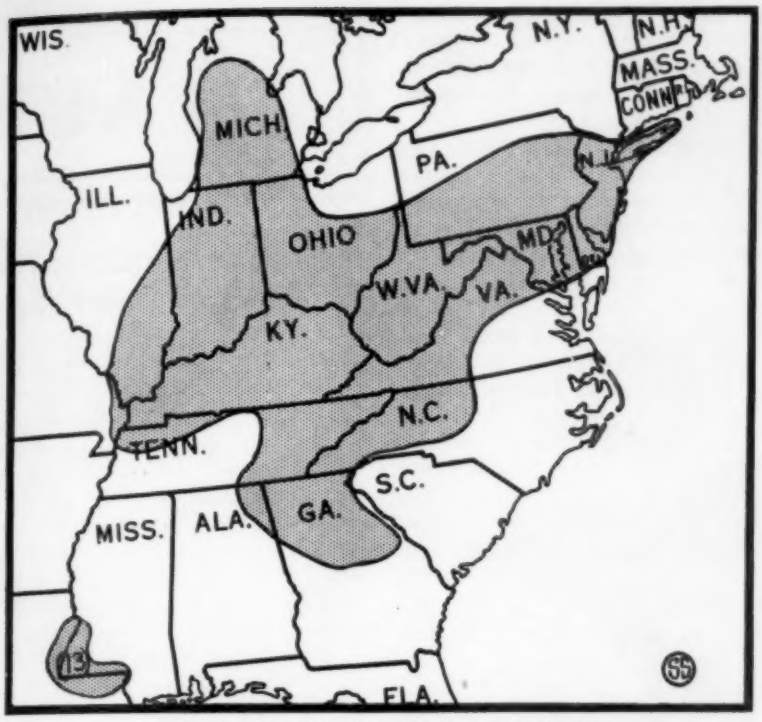
During the second year after operation the beard grew back and some other signs of the original condition reappeared. A tumor was found in the part of the gland removed.

Parents' Glands Important

How the parents' thymus glands affect the rate of growth and development of the offspring, at least in rats, was demonstrated to members of the Association.

The function of this gland, located in the chest, was largely a matter of guess until three years ago, when the astonishing experiments reported were undertaken by Drs. L. G. Rowntree, J. H. Clark, N. H. Einhorn and Arthur Steinberg of Philadelphia and Dr. A. M. Hanson of Faribault, Minn.

The thymus gland is large in children but grows smaller with age. It was supposed therefore to (*Turn to page* 318)



THE 17-YEAR "LOCUST'S" KINGDOM

This map shows the distribution of this year's outcrop of the 17-year cicada, commonly called 17-year locust. The small area near mouth of Mississippi river is the territory of the 13-year cicada, a cousin-insect.

ENTOMOLOGY

Longest-Lived of All Insects; Not That of Bible Plague

See Front Cover

OLD-AGE champions of the insect world are beginning to appear in the Southeast. They will swarm in uncountable millions, over a great part of the eastern United States, before their day of sunlight and song is ended, in the closing days of June.

They are the 17-year cicadas, usually called 17-year locusts. They will appear from Georgia on the south to Michigan on the north, from Long Island on the east to the Mississippi river on the west, with smaller outlying swarms in Wisconsin, New England, and other border areas. Similar insects, the 13-year cicadas, will appear in a single compact area, where the "corner" of Mississippi fits into Louisiana. They are rather large insects, about the size of big bumblebees, with transparent, dark-veined wings.

They are not really locusts. True locusts, the kind that were one of the Plagues of Egypt, are long-winged grasshoppers, and are terribly destructive. The 17-year cicadas are strictly American insects, and they are usually harmless. The only damage they cause is by laying their eggs in the young green twigs of trees. This causes leaves to drop off, and sometimes kills young nursery and orchard stock. But for the most part they are more noisy than they are economically important.

The cicadas are the longest-lived insects known. After their eggs are hatched, the tiny young ones, no bigger than ants, dig into the ground, and there they live for 17 long years (13, in the Southern species), sucking sap from the roots of trees. In the late spring of the seventeenth year, they burrow to the surface, climb up the trees and bushes, split their "baby-clothes" up the back, and emerge as winged, singing insects. They live for a few weeks in the sunlight, mate, lay their eggs—and die. The brood now emerging are the orphan offspring of the brood that emerged and died in 1919.

Of the 17-year species there are 17 broods; of the 13-year species in the South, 13 broods. Each brood has its known area, and of course its known years of appearance. This year's brood has an unusually large area. Last year's was confined mainly to West Virginia and the mountainous parts of Virginia and northwestern North Carolina. Next year's brood is known only from Massachusetts, Connecticut and Rhode Island.

The enormous numbers and the shrill noisiness of the 17-year cicadas, as they swarm in the woods, sometimes cause a good deal of alarm. Superstitious folk are also prone to think that the orange-red W-shaped mark near the tip of each wing is a sure omen of war. However, since these insects appear somewhere in this country every year, and since there is almost always a war going on somewhere in the world, the cicada's powers of prophecy are not really put to a very severe test.

The front cover photograph of a young cicada still in his "cradle-clothes" is by Cornelia Clarke.

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RADIO

Moon Tides in Upper Air Affect Radio Reception

OWNERS of the new high-powered radio receivers may get their thrills from "picking up" distant stations throughout the United States and foreign lands, but scientists use these distant signals to study the tides created by the moon in the ionized layers miles above the earth which make such transmission possible.

Dr. Harlan T. Stetson, of Harvard, presented new facts about the moon tides in the radio reflecting layers before the joint meeting of the Institute of Radio Engineers and International Scientific Radio Union in Washington, D. C.

Dr. Stetson studied the changing intensity of radio signals between KFI Los Angeles and WBBM Chicago and Delaware, Ohio, as the moon moved across the sky at night.

Correlating his findings with observations made at Harvard University by Prof. H. R. Mimno, Dr. Stetson concludes:

"These results may be interpreted as indicating that when the moon is opposite the sun there is a tendency for an increase in the ionic density on the night half of the earth's atmosphere, thus favoring increased number of reflections (better reception) from the E layer."

The E layer refers to one of the several zones of ionized particles which reflect radio waves.

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METEOROLOGY

Drought's Southwestern Empire Spreading

DROUGHT'S empire in the Southwest is spreading dangerously, a study by the U. S. Weather Bureau shows. The region in which the rainfall from Jan. 1 to May 1 was less than half normal includes the entire state of Oklahoma, almost all of Kansas and Arkansas, the northern half of Texas, parts of New Mexico and Colorado, and about three-fourths of Missouri.

This southwestern centering of the drought area is in marked contrast to the condition prevailing during the great drought year of 1934, when the principal "fifty per cent. minus" area was in the Northwest, including large parts of the Dakotas, Montana, and Nebraska, with extensions into adjoining states. There was also a "half rainfall" island in central California, and smaller ones just west of Lake Michigan and along the Ohio River.

The situation, however, is not hopeless, the Weather Bureau adds. Recent rains have invaded the drought area, and if they continue, as rains in the West normally do in June and early July, the domain of the drought will have considerable provinces lopped off it.

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GENERAL SCIENCE

Orville Wright Among 15 Elected To Academy

ORVILLE WRIGHT, inventor of the airplane, is among the fifteen scientists elected to the National Academy of Sciences, "senate" of American science.

Youngest among the new academicians is Dr. I. S. Bowen, aged 38, physicist of the California Institute of Technology, noted for his researches upon light. Oldest is Dr. Edwin O. Jordan, aged 70, chairman of the department of bacteriology at the University of Chicago. Dr. Wright is now 64.

The inventor of bakelite and velox paper, Dr. Leo H. Baekeland, 69, was also among those elected. Others honored with election were:

Dr. Eliot Blackwelder, 56, Stanford University geologist.

Dr. Wallace H. Carothers, 40, duPont research chemist.

Dr. Alexander Forbes, 48, Harvard physiologist.

Dr. W. F. Giauque, 41, University of California physical chemist who specializes in low temperature research.

Dr. Clark L. Hull, 51, Yale psychologist.

Dr. A. V. Kidder, 51, archaeologist who is head of the Carnegie Institution's division of historical research.

Dr. Warren H. Lewis, 65, anatomist and cytologist of the Carnegie Institution and Johns Hopkins.

Dr. Robert S. Mulliken, 39, University of Chicago physicist.

Dr. W. C. Rose, 49, University of Illinois biochemist.

Dr. Edmund W. Sinnott, 48, Columbia University botanist.

Dr. J. L. Walsh, 40, Harvard mathematician.

Science News Letter, May 16, 1936

PHYSICS-PHYSIOLOGY

Skin Tells Presence of Another Person in Dark

THE much-ridiculed ability of a person to go into a dark room and tell that another person—a burglar perhaps—is also present, even though no sound is heard or figure actually seen, was given scientific credence at the meeting of the American Physical Society in Washington, D. C.

The human skin, reported Drs. J. D. Hardy and T. W. Oppel of Russell Sage Institute of Pathology, New York City, is more sensitive than the best mercury-in-glass thermometers which scientists can make.

This extremely high heat sensitivity of the skin, said the scientists, "is probably the explanation of the so-called 'sixth' sense whereby the presence of another person in the dark is made known."

The minimum amount of radiation required to stimulate the heat sensation in the skin of the face, the scientists reported, causes a temperature rise of only five ten-thousandths of a degree Centigrade per second.

Boeckman type differential thermometers, among the most sensitive instruments available, will only record temperature differences of one-thousandth of a degree Centigrade or more, according to the thermometer calibration division of the National Bureau of Standards in Washington.

The New York scientists radiated white skin of the face with various wavelengths of both visible and infrared light. They found that the sensitivity of the skin to heat varied with the area exposed up to 200 square centimeters, or about 30 square inches. After this area was attained there was little increase in absolute sensitivity.

Science News Letter, May 16, 1936

IN SCIE

GENERAL SCIENCE

New Foundation Has Funds For Research Fellowships

FUNDS for research work in science are provided by the newly organized Lalor Foundation, Dr. C. Lalor Burdick, its secretary, announced. A bequest of $400,000 from the late Willard A. Lalor, formerly of the Chicago, Burlington and Quincy Railway, established the foundation as a testimonial to his sister, Mrs. Anna Lalor Burdick of the Office of Education, U. S. Department of the Interior, and his brother, John C. Lalor, who was active in the early development of mining and metallurgical industries of Montana.

Five research professorships and fellowships, of $2,500 each, will be made available during the coming academic year, in certain specified fields of science. Only mature scholars, who have already taken the doctor's degree, will be eligible. The first awards will be announced in the near future.

Dr. Charles Lee Reese is president of the Lalor Foundation, and Mrs. Anna Lalor Burdick, vice-president.

Science News Letter, May 16, 1936

EXPLORATION

Explorers To Use Tank In South American Jungle

PEACEFUL science, rather than destructive war, is the end in view for a tank now being constructed by a Swiss engineer, Herr Bachmann, at Horgen, Switzerland. It is intended to carry a party of German, Swiss and South American explorers into the "green hell" of the Amazonian jungle.

The turret on top of the tank will carry, not a machine gun, but a sound-recording motion picture camera. Caterpillar treads are expected to make going possible through thick jungle and marshy ground. The tank is an amphibian, with pontoons for river navigation.

Within the steel shell, the exploring party expects to be safe alike against the arrows and bullets of implacably hostile savages, the bites of poisonous snakes, and disease-carrying insects, and the possible onslaughts of wild animals.

Science News Letter, May 16, 1936

EE FIELDS

GEOLOGY

Sea Level Sank Half Mile Million Years Ago

ONCE early in the great Ice Age, about a million years ago, the level of the sea was 3,000 feet lower than it is now and the missing water was piled high upon the continents as ice of great glaciers.

This picture was presented to the National Academy of Sciences by Prof. Francis P. Shepard, University of Illinois geologist, as a result of his investigations of great river-cut canyons of the sea floor, some of them 10,000 feet below the ocean's surface or about twice the depth of famous Grand Canyon in Arizona.

One explanation of how they were formed is that the coasts of the world were raised up above their present position during the glacial period. Prof. Shepard considers such a gigantic movement in relatively recent times as "scarcely creditable."

Instead he told the academicians that it is much more reasonable that the canyons were formed by a combination of processes of which the sea level change was the most important. The deep portions outside were probably formed in some other way.

Science News Letter, May 16, 1936

RADIO

Experimenting Scientists On the Trail of Static

STATIC, the still-unconquered ogre of radio, has science hard on its trail, it was disclosed at the meeting of the American Geophysical Union. S. L. Seaton, of the Carnegie Institution of Washington, is working on the problem in a special laboratory at Watheroo, Western Australia. A Washington colleague, H. F. Johnston, reported on his behalf.

A loop antenna, rotating continuously, is the key-piece of Mr. Seaton's apparatus. Into the hookup a special device has been incorporated, which makes very exact direction determinations possible. The set is so sensitive that static originating as far away as Central America has been detected at Watheroo.

Most atmospheric disturbances originate in thunderstorm regions. The observations indicate that most of the atmospherics originate from land areas, which conforms with the known fact that thunderstorms are more frequent over land than over the ocean.

Apart from the interest in atmospherics owing to their effect on ordinary radio reception, scientists are concerned about them as possible guides in assisting meteorological forecasts. Since they come from regions of thunderstorm activity it is possible by noting their direction to determine the course of a distant thunderstorm. Such methods may be of very great value since the presence of areas of thunderstorm and hurricane may be detected over the ocean where no weather bureau stations are located to record and to report on them and their progress.

Science News Letter, May 16, 1936

RADIO

Suggest Assigning Radio Wavelength to Physicians

THE ASSIGNMENT of a short-wave radio wavelength to physicians is suggested. (*Journal of the American Medical Association,* Mar. 28.)

The doctor's wavelength would not be for communication but for therapeutic purposes. The suggestion is the outgrowth of recent interference caused by short-wave diathermy machines used by physicians for treating inflamed joints and other ailments where heat is needed.

Dr. Harry Rowe Mimno of Harvard University recently traced a minor radio mystery of "celestial signals" and the malice of an "antisocial crank" to a diathermy machine on Harvard's campus.

The *Journal of the A.M.A.* makes two suggestions: 1. That manufacturers of short-wave diathermy machines get together and determine some one wavelength that is the most efficient for treatment purposes. They can then ask that this channel be assigned to them for therapeutic use.

2. That in the meantime those physicians who may be accused of interfering with radio communication, consult the makers of their machines as to the proper method of screening and minimizing interference.

The American Medical Association states that each manufacturer of this equipment has his own favorite wavelength. The Association's Council on Physical Therapy does not accept the claim that one wavelength is more efficient than another.

Science News Letter, May 16, 1936

CHEMISTRY

Tennessee Chemist Wins Charles Herty Award

AS "the man who has done outstanding chemical work in the South this year," Dr. Walter H. McIntire, Tennessee chemist, has been selected as the 1935 recipient of the Charles Herty award of the Chemistry Department of the Georgia State College for Women. Presentation of the award will be on May 16.

Dr. McIntire is professor of chemistry at the University of Tennessee and consultant for TVA. He has been a leading researcher for ways of making efficient and cheap fertilizer from low-grade phosphate rock.

Selection of Dr. McIntire for the award was made by a committee of the Georgia Section of the American Chemical Society. The 1933 award went to Prof. Fred Allison of Alabama Polytechnic Institute and in 1934 it was given to Dr. Charles H. Herty, formerly professor of chemistry at the University of Georgia and University of North Carolina and now a consulting chemist of New York City.

Science News Letter, May 16, 1936

PSYCHIATRY

Psychiatric Control of Criminals Advocated

IF PSYCHIATRISTS had their way, and their advice about paroles and releases of criminals were followed, society would be far better protected, Dr. Cornelius C. Wholey of Pittsburgh declared at the meeting of the American Psychiatric Association.

"Psychiatrists entertain no slushy sentimentality toward the criminal class," Dr. Wholey stated.

The psychiatrists would not free irresponsible and dangerous criminals at the termination of their sentence, as is now customary, he said. Some are definite mental cases. An even greater menace are those unregenerate criminals whose past records and perverse personalities clearly show that they are incurable and will remain menaces for life. Crimes committed by psychopathic persons are largely those in which the safety of another person is involved, while the crimes committed by non-psychopathic criminals are chiefly against property, such as robbery.

One person out of every fifteen at some time in his life becomes a mental case, Dr. Wholey estimated.

Science News Letter, May 16, 1936

MODERN CHEMISTRY

"OUT OF THE TEST TUBE"

by Dr. Harry N. Holmes

Dr. Holmes, professor of Chemistry at Oberlin College, is internationally known as author and lecturer. He is one of this country's most distinguished chemists, a past Division Chairman of the American Chemical Society, and author of 10 standard works on chemistry.

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From Page 314

play a part in growth but no one previously knew just how it acted. Then Dr. Hanson found a way to prepare a potent extract from the gland and Dr. Rowntree and associates started feeding it to successive generations of rats. The accruing speed with which successive generations of young rats grew and developed into large, healthy, mature rats is truly amazing even to scientists.

The experiments, carried now through the twelfth generation, shows the function of the parent rat thymus gland to be concerned with the rate of growth and development of the young.

As further proof of this, Dr. Rowntree and associates reported that removing the thymus gland in five successive generations of parent rats markedly slowed the rate of growth of the offspring and also slowed somewhat the rate of development and maturation.

This slowing effect of thymus removal, however, can be overcome and the growth and development speeded up once more by either giving doses of thymus extract or by transplanting thymus gland tissue.

Experiments along the same line have been started by these scientists with the object of possibly clearing up another gland mystery, the function of the pineal gland. This small gland in the head was once called the "seat of the soul." Experiments reported suggest that it is more likely the seat of a potent mechanism that may play a part in keeping us all from growing into giants. The experiments have not gone far enough for any conclusions, Dr. Rowntree said, but Dr. Hanson's pineal extract has been given to six successive generations of parent rats. As a result, growth has been so slowed and development so speeded in the offspring that "precocious dwarfism" has resulted.

Explode Blood Pressure Theory

One theory of a cause of high blood pressure was exploded by experiments reported by Prof. A. T. Rasmussen, University of Minnesota Medical School.

The theory was that high blood pressure might be caused by over-activity of or increase in numbers of so-called basophilic cells in the pituitary gland. The pituitary gland has an effect on blood pressure, but the studies reported show that its basophilic cells have nothing to do with the matter.

Prof. Rasmussen reported counts of these cells in 89 cases of sudden death, and also referred to similar study, by another investigator, of these cells in 70 cases of patients who had all had very high blood pressures. The results of these studies, he said, do not warrant blaming high blood pressure on over-proportion or over-activity of the basophilic cells. Incidentally, it takes nearly an entire day to determine, with the necessary accuracy, the relative number of the different types of cells in one human pituitary gland.

Persons with a constitutional tendency to overweight may, however, be able to blame it on the basophilic cells. Prof. Rasmussen found a "strong suggestion of a positive correlation" between the two, but lacks enough evidence for any definite conclusion.

New Light on Thyroid

Mimicking in the chemical laboratory the thyroid gland's natural chemistry by which it produces its powerful hormone, thyroxin, Dr. William T. Salter of Harvard Medical School was able to discover why iodine gives striking relief to patients suffering from one form of thyroid disease.

In the particular disease Dr. Salter studied, the thyroid gland sends too much of its hormone into the body, and the patient is in a sense poisoned by this overdose of thyroxin. His body processes proceed at too rapid a pace, he becomes thin and nervous, with popping eyes, rapid pulse, indigestion and other troubles. It seems paradoxical that doses of iodine relieve the condition, because iodine is one of the constituents of the thyroid hormone, thyroxin.

When iodine is given the gland immediately starts to manufacture more thyroxin to use up the fresh supply of iodine. This manufacture proceeds by stages, however, during which an intermediate hormone product is stored in the gland. During this storage period, the amount of hormone in the blood is lessened and the patient improves.

Meanwhile the primary cause of the thyroid over-activity continues "in vain to summon forth thyroid secretion," Dr. Salter explained. When no more new hormone protein can be stored in the goiter, however, the primary cause of the trouble may succeed eventually in producing an "escape" from the iodine effect, and the patient will be ill again.

Dr. Salter was able by chemical methods to obtain a substance representing the first-stage product in the natural manufacture of the hormone, and then by further treatment he converted this into another substance like the next natural product in thyroxin making.

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WATSON DAVIS, *Director.*

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PSYCHIATRY

Physicians Believe Cause of Schizophrenia is Found

Disturbances of Circulation, Oxygen Consumption, And Heat Regulation Point to Affected Hypothalamus

DISTURBANCE of part of the forebrain called the hypothalamus is responsible for many of the symptoms of schizophrenia, Drs. Isidore Finkelman and Daniel Haffron, of Elgin, Ill., State Hospital, believe as a result of studies they reported to the American Psychiatric Association meeting in St. Louis. Patients suffering from schizophrenia are for the most part out of touch with their surroundings, living in a world of their own. Their body processes go on at a slower tempo than in normal persons. Less blood circulates through their veins and they consume less oxygen. Their mechanism for heat regulation is defective and they do not show any sign of emotion.

The hypothalamus is concerned with emotional expression and in this part of the brain also are located centers for regulating oxygen consumption, heat control and water balance. Since these mechanisms are out of order in schizophrenia, Drs. Finkelman and Haffron conclude that disturbance of the hypothalamus is a primary factor in the disease.

Old Age Changes Brain

The mental deterioration of old age is partly due to changes in the brain that take place with increasing age. Another important cause of this mental deterioration, called senility, is the difficulty old people have in adjusting to the changes in their lives as well as to the physical changes in their brains and bodies, Dr. David Rothschild of Foxborough, Mass., State Hospital pointed out.

A man who has worked hard every day for forty years or more finds it difficult to be inactive. Loss of old friends and relatives and physical infirmities and weakness are hard to compensate for. Some old persons can find pleasure in new interests and friends and in less strenuous activities. Such persons do not develop senility, even though they may have the same physical changes in their brain tissues as patients showing signs of mental deterioration. But other old men and women find the adjustment to changed ways of living and to the physical changes in the brain too much to cope with and they develop the senile mental disease.

Psychic Anesthetic

Ten minutes' reassuring talk by the physician or surgeon—a psychic anesthetic—can take the place of a "shot" of morphine in quieting a patient before surgical operation and easing his pain and discomfort after the operation, Dr. Thomas J. Heldt of The Henry Ford Hospital, Detroit, told the meeting.

The use of opiates before and after operations is a surgical habit rather than a necessity, Dr. Heldt declared.

Mental distraction is the most potent pain-soothing remedy known. However, if the surgeon cannot conveniently use this psychic method to relieve his patients' pain, he can achieve the same results with drugs other than the habit-forming opiates and coca leaf derivatives. Dr. Heldt reported one hundred major operations performed with a new drug, novaldin, and certain modern sleeping potions substituting for the opiates usually given before and after the operations.

Novaldin has a long chemical name and is related to phenyl-hydrazine and amidopyrin. Before the operations sodium amytal was given and afterwards novaldin and doses of phenobarbital were found sufficient to allay pain and restlessness. Dr. Heldt did not actually try the psychic method of relieving pain which he said would be sufficient.

Too Much Farm Work

Too much emphasis on farm activities and not enough of other types of occupational therapy is a fault found in some institutions for mental disease, Dr. George F. Inch of Ypsilanti, Mich., State Hospital charged at the meeting of the American Psychiatric Association. The occupational therapy plant must be used as a laboratory and not as a craft center, he declared. Occupational therapy and recreational therapy should be managed independently of each other, except for such coordination as the medical staff arranges.

Occupational therapy in a state hospital for mental disease has two objects: 1. To aid the patient to a complete recovery and return to society; 2. To help the patient make a better adjustment in the hospital if because of the nature of his ailment he is destined to spend the rest of his life in the institution. The patient's likes, dislikes, capabilities, insight and reactions and everything else possible about him should be known before a complete program of occupational therapy is arranged for him.

Prevent Suicides

Playing volley ball and similar games may prevent mentally sick persons from committing suicide, and croquet has proved a valuable remedy in at least one case of the serious mental disorder, dementia precox.

How such athletic activities ranging from baseball and swimming to setting-up exercises, enjoyed as healthy recreation by well persons, can be valuable remedies in treating mentally sick persons, was demonstrated by Dr. D. D. Campbell, general manager of the Veterans Administration Facility at Perry Point, Md.

No suicides have been attempted in the group of patients at Perry Point since the program of physical activity has been started, Dr. Campbell reported. The games and activities turn the morbid, self-centered thoughts of the patient into pleasant channels. Acquiring skill at these games gives him a new feeling of self-confidence and raises his morale, especially when his new skill is recognized and admired by others. As one of the patients, who had been admitted to the hospital following an attempt at suicide, put it, "I have something to live for now."

THE IDENTITY THEORY
By Blamey Stevens

Electro-magnetic Fields

Maxwell's electro-magnetic field laws state that the space variation of the electric field is equal to the time variation of the magnetic field, and *vice versa* that the time variation of the electric field is equal to the space variation of the magnetic field.

This relation is an expression of the only postulate of the Identity Theory, namely that except for differences in dimensions space is identical with time.

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EUGENICS

Good Home Conditions Demand of Eugenics Plan

EMPHASIZING good home environment in childhood's early years, a new approach to practical eugenics is being studied by a group of scientists and science-minded laymen forming the American Eugenics Society.

A new "conservative program of eugenics" is summarized in the statement:

"The children of the United States must be born of parents who will provide the essentials necessary for the development of character, physique and intelligence."

This new development emphasizes that, apart from the small fraction of the population who are known to be carriers of hereditary defect, home conditions appear to provide as good a basis for biological selection as is possible in the present state of knowledge.

It is an attempt to divorce eugenics from its connection with particular races, so-called class superiorities and mere sterilization of physical and social defectives.

A return to the dowry system for brides and automatic increases in salary upon marriage and birth of children to employes in both government and industry was urged by Dr. Will Durant, author of "The Story of Civilization," in a paper before the meeting.

The purpose would be to encourage marriage and parenthood among the middle classes. He also urged the doubling of income tax exemption allowed parents for each dependent child.

"Democracy will probably disappear," he warned, "if popular intelligence fails to keep pace with popular power. We are not sure that ability is transmitted, but the history of animal breeding makes it probable. If it is, the infertility of the able is a heavy drag on the efforts of our schools to raise the mental level of our people."

Segregation or sterilization of all persons sufficiently feeble-minded to require public care was advocated by Dr. Durant, who also urged birth control information distributed by physicians and social workers as a means of lowering birth rate among those less fit for parenthood.

Science News Letter, May 16, 1936

●RADIO

May 19, 2:15 p. m., E.S.T.

AMERICA GROWS OLDER—Dr. Warren S. Thompson, Director of the Scripps Foundation for Research in Population Problems, Miami University.

May 26, 2:15 p. m., E.S.T.

HOT WEATHER THINKING—Dr. John P. H. Murphy of St. Elizabeth's Hospital.

In the Science Service series of radio discussions led by Watson Davis, Director, over the Columbia Broadcasting System.

PSYCHIATRY

Effect of Sigmund Freud's Studies on Medicine Surveyed

THE world-wide celebration, Wednesday, May 6, of the eightieth birthday of Sigmund Freud, whose startling concept of the unconscious mind shook the world thirty years ago, has inspired an American evaluation of his work.

An editorial in the *Journal of the American Medical Association* (May 9) undertakes an early assignment of the famous European psychiatrist and psycho-analyst to his place in medical history.

Modern psychiatry is in a phase of fermentation and turbulent change, the medical journal asserts. In spite of the tremendous influence of Freud on contemporary thought, the editor finds it difficult to appreciate fully the nature and extent of Freud's influence on his own field of modern psychiatry and on medicine in general.

"Human beings seem instinctively to resent the acknowledgment forced upon them by Freud that even their own personalities are removed from the sovereign influence of their conscious selves, and that they are not even complete masters of their own acts," the editorial declares.

The discovery of the unconscious led to a striving to bring the unconscious under the domination of consciousness. This is the essence of the technique of psycho-analysis, Freud's method of treatment.

The *Journal of the American Medical Association* does not regard it as peculiar that Freud and his followers are still somewhat isolated from the rest of medicine. "The fight for the scientific study of the human body by dissection lasted for centuries," the Journal points out, "and the unbiased objective study of the human personality must prevail over greater emotional obstacles."

A few statements regarding Freud made in the *Journal* show the high regard in which his work is held:

"Freud's influence on medicine is no doubt still in its infancy."

"No other man has contributed a greater stimulus toward study and understanding of psychologic phenomena."

"The position of Freud as a great leader is secure."

"As we associate Vesalius with anatomy, Harvey with physiology, Virchow with pathology and Pasteur with bacteriology, we shall come to consider Sigmund Freud as the founder of a new trend of thought in psychiatry—an investigator with a 'profound insight into the workings of primitive mentality.'"

Science News Letter, May 16, 1936

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•First Glances at New Books

Psychiatry

TWENTIETH-CENTURY PSYCHIATRY—William A. White—*Norton,* 198 p., $2. Even though you may have no professional interest in psychiatry, you will probably find keen interest in these thought-provoking lectures by one who is philosopher as well as physician. The subtitle, "Its Contribution to Man's Knowledge of Himself" reveals the approach of the author, who discusses psychiatry not alone "in its more limited sense as a medical specialty but in that broader sense which relates it to all the other departments of thought and experience."

Science News Letter, May 16, 1936

Economics

WHAT VEBLEN TAUGHT—Ed. by Wesley C. Mitchell—*Viking Press,* 503 p., $3. A new printing of a book originally published in 1899, and still of importance. Veblen was a pioneer in what may be called the "new economics."

Science News Letter, May 16, 1936

Psychology

GENERAL PSYCHOLOGY, Rev. Ed.—Floyd C. Dockeray—*Prentice-Hall,* 576 p., $3.50. A revised edition of a first-year textbook. In the new revision, "greater emphasis has been given to the growing recognition of the importance of configuration without the adoption of an extreme Gestalt viewpoint."

Science News Letter, May 16, 1936

General Science

EXPLORATIONS AND FIELD-WORK OF THE SMITHSONIAN INSTITUTION IN 1935—*Smithsonian Institution,* 80 p., 85 plates, Free upon direct application to Smithsonian Institution, Washington, D. C. Brief, informal accounts of expeditions, including Capt. Bartlett's Greenland voyage, a frog-hunting expedition to Brazil, an adventurous quest for insects on a sacred mountain of China, and a number of studies of American aboriginal life.

Science News Letter, May 16, 1936

Psychology

THE RELATION BETWEEN MORALITY AND INTELLECT—Clara Frances Chassell—*Teachers College, Columbia,* 556 p., $4.50. Two extreme popular viewpoints would blame most delinquency and crime upon intellectual defects, or, on the other hand, would regard criminals as possessed of fiendish super-minds. This volume, which is No. 607 of the "Contributions to Education," is based upon the findings of nearly 300 researches, and indicates the fallacy of both these viewpoints. It shows that a relation betwen morality and intellect does truly exist but that it is not a close one even in the general population and tends to be still smaller in restricted groups such as those confined in prison.

Science News Letter, May 16, 1936

Economics

$2500 A YEAR—Mordecai Ezekiel—*Harcourt, Brace,* 328 p., $2.50. The economic adviser to the Secretary of Agriculture charts with definiteness the means of changing our economic society from a realm of scarcity to one of abundance. Current ideas of what is wrong with our economic state are reviewed. Organized properly, our nation could easily produce and distribute enough to make $2,500 the minimum family income. The Ezekiel solution, "industrial adjustment," is a scheme which rewards concerns which voluntarily expand production and payrolls according to interlocking concerted programs and penalizes those that do not.

Science News Letter, May 16, 1936

Zoology

INVERTEBRATE ZOOLOGY, Revised 5th ed.—Gilman A. Drew; Revised by James A. Dawson and Leonard P. Sayles—*Saunders,* 276 p., $2.25. For almost a generation, students at the great marine biology center at Woods Hole have been using this manual as it has evolved. The new revision brings it up to date in certain respects; improvement in basic approach, for the special teaching and research problems involved, would hardly have been possible.

Science News Letter, May 16, 1936

Physiology

WIDTH-WEIGHT TABLES—Helen B. Pryor—*Stanford Univ. Press,* 15 p., single copies, 60c.; 2 to 4 copies, 50c. ea.; 5 to 9 copies, 40c. ea. "Determination of appropriate body weight as an index of nutrition should take into account not only the factors of sex, height and age, but also the nature of the bony framework and the body structure. The individual with large skeletal structure tends to be broad and to have heavy muscle tissues . . . while the individual with a small skeleton tends to be slender and have light muscle structure."

Science News Letter, May 16, 1936

General Science

AMERICAN FOUNDATIONS: A STUDY OF THEIR ROLE IN THE CHILD WELFARE MOVEMENT—Harold Coe Coffman—*Association Press,* 213 p., $3. The seventy-five Foundations discussed in this book paid out more than half a billion dollars in the decade ending in 1930. The author tells who got this money, what was done with it and what changes in the direction of such philanthropy are now taking place.

Science News Letter, May 16, 1936

Social Science

METHODOLOGY OF SOCIAL SCIENCE RESEARCH: A BIBLIOGRAPHY—Dorothy Campbell Culver—*Univ. of California Press,* 159 p., $2. A publication of the Bureau of Public Administration, University of California. This selected and annotated bibliography is limited to studies, rather than examples of method in social science research.

Science News Letter, May 16, 1936

Engineering

EROSION CONTROL ON MOUNTAIN ROADS—Charles J. Kraebel—*Govt. Print. Off.,* 45 p., 10c. A Forest Service bulletin that will be welcomed for its terse, practical suggestions for meeting a severe engineering problem largely with "native" materials.

Science News Letter, May 16, 1936

Chemistry

INORGANIC CHEMISTRY—Niels Bjerrum—*William Heinemann, Ltd., London; American agents, Chemical Pub. Co. of N. Y.,* 317 p., $3.50. Translated from the third Danish edition and brought up to date and adapted to English conditions in collaboration with the author by R. P. Bell.

Science News Letter, May 16, 1936

Medicine

LOBAR PNEUMONIA AND SERUM THERAPY—Frederick T. Lord and Roderick Heffron—*The Commonwealth Fund,* 91 p., illus., $1. This handbook discusses fully the use of antipneumococcic serum in the treatment of lobar pneumonia, with special attention to clinical diagnosis, selection of cases for serum treatment, identification of pneumococcus type, technic of administering the serum, precautions to be observed, possible reactions and their treatment, and results of serum therapy.

Science News Letter, May 16, 1936

Psychology

PERSONALITY—Harold V. Gaskill—*Prentice-Hall,* 52 p., 50c. A convenient, paper-bound book intended to introduce beginning college students to this important subject. To quote the author "It is not to be regarded as a foundation for the 'charm school' approach to developing personality, but rather as the foundation for an uncomplicated scientific approach to the study of personality."

Science News Letter, May 16, 1936

Therapeutics

NEW PATHWAYS FOR CHILDREN WITH CEREBRAL PALSY—Gladys Gage Rogers, and Leah C. Thomas—*Macmillan,* 167 p., XI plates, $2.50. "No effort can make these children normal, but they may have 'a normal world brought to them.' The fear complex is banished and relaxation becomes possible. Eagerness and happiness replace lethargy and discouragement."

Science News Letter, May 16, 1936

Manual Training

MANUAL ARTS, EDUCATIONAL AND VOCATIONAL—S. C. Roberts—*Bruce Humphries,* 277 p., $2.50. This book intended for use in manual training courses contains instructions, and the necessary fundamental information, for building all sorts of wood articles from a simple magazine rack to period furniture.

Science News Letter, May 16, 1936

Economics

RAW MATERIALS, POPULATION PRESSURE, AND WAR—Sir Norman Angell—*World Peace Foundation,* 46 p., 75c. A leading British author and lecturer and winner of the Nobel Peace Award points out current misconceptions about war causes and makes constructive suggestions as to preventive measures.

Science News Letter, May 16, 1936

Biography

A DOCTOR'S ODYSSEY, A SENTIMENTAL RECORD OF LE ROY CRUMMER: Physician, Author, Bibliophile, Artist in Living, 1872-1934—A. Gaylord Beaman—*Johns Hopkins Press,* 340 p., $2.50. A splendid memorial to Dr. Crummer, containing numerous memoirs by his associates, letters, and a bibliography of his work.

Science News Letter, May 16, 1936

Psychoanalysis

PRACTICAL ASPECTS OF PSYCHOANALYSIS—Lawrence Kubie—*Norton,* 223 p., $2. A book written for the uninformed layman, giving general information about psychoanalysis. The purpose of the work is to remove certain prevalent misconceptions regarding this method of treatment for mental illness and to indicate ways of distinguishing the trained professional psychoanalyst from the charlatan. An appendix lists accredited psychoanalytic societies.

Science News Letter, May 16, 1936

Chemistry

CHEMICAL FORMULARY, Vol. 3—H. Bennett, Editor-in-Chief—*Van Nostrand,* 566 p., $6. Every formula in this book is new and different from those listed in Volumes 1 and 2. In addition to the regular index, this book has a special index to all three volumes of the Chemical Formulary.

Science News Letter, May 16, 1936

Economics

TWO LETTERS ON THE MEASURE OF VALUE: Contributed to *The Traveler* (London) in December, 1822—John Stuart Mill—*Johns Hopkins Press,* 24 p., $1.

Science News Letter, May 16, 1936

Medicine

WHEAT GERM OIL—VITAMIN E—August J. Pacini—*The American Physician,* 93 p., $1.

Science News Letter, May 16, 1936

Philosophy of Medicine

THE HISTORY OF THE PHILOSOPHY OF MEDICINE—L. A. Turley—*Univ. of Oklahoma Press,* 43 p., 50c.

Science News Letter, May 16, 1936

Toxicology

LEÇONS DE TOXICOLOGIE—René Fabre—*Hermann & Cie., Paris.* Pt. III, Toxicologie des Gaz, 82 p., 15 fr.; Pt. IV, Alcools—Anesthésiques Solvants, 77 p., 15 fr.; Pt. V, Acide Cyanhydrique Dérivés Aromatiques, 57 p., 12 fr.; Pt. VI, Poisons Organiques Divers, 57 p., 12 fr.; Pt. VII, Alcaloïdes, Vol. 1, 63 p., 12 fr.; Pt. VIII, Alcaloïdes, Vol. 2, 57 p., 12 fr.; Pt. IX, Toxiques Minéraux, Vol. 1, 68 p., 12 fr.; Pt. X, Toxiques Minéraux, Vol. 2, 56 p., 12 fr.; Pt. XI, Toxiques Minéraux, Vol. 3, 68 p., 15 fr.

Science News Letter, May 16, 1936

Medicine

LES FIEVRES ET LES MEDICAMENTS ANTITHERMIQUES—J. Sivadjian—*Hermann & Cie., Paris,* 96 p., 15 fr.

Science News Letter, May 16, 1936

Nutrition

NUTRITIONAL CHARTS—Prepared by the staff of the Research Department of H. J. Heinz Company, 29 p., free to all medical, dental, dietetic, and food specialists upon direct request to H. J. Heinz Co., N. S., Pittsburgh, Pa.

Science News Letter, May 16, 1936

Hydrodynamics

HYDRODYNAMIQUE FLUVIALE REGIMES VARIABLES—Pierre Massé—*Hermann & Cie., Paris,* 88 p., 18 fr.

Science News Letter, May 16, 1936

Engineering

LA STABILITE DE ROUTE DES LOCOMOTIVES; Deuxième Partie—M. Julien and Y. Rocard—*Hermann & Cie., Paris,* 73 p., 15 fr.

Science News Letter, May 16, 1936

Chemistry

ACTIVITE ET INTERACTION IONIQUE: Première partie, Exposé Théorique—M. Quintin—*Hermann & Cie., Paris,* 33 p., 8 fr.

Science News Letter, May 16, 1936

Chemistry

CONTRIBUTION A L'ETUDE DE LA CONSTITUTION DE L'AMIDON—R. Sutra—*Hermann & Cie., Paris,* 59 p., 15 fr.

Science News Letter, May 16, 1936

Physics

LES THERMOSTATS POUR LES TEMPERATURES MOYENNES—André Lalande—*Hermann & Cie., Paris,* 54 p., 15 fr.

Science News Letter, May 16, 1936

Photography

FIFTY DOLLARS A WEEK WITH CAR AND CAMERA—Paul Glenn Holt and H. Rossiter Snyder—*Rossiter Snyder,* 46 p., 50c. A new edition of a book which might help make a summer vacation both pleasant and profitable.

Science News Letter, May 16, 1936

Photography

MORE CAMERA JOURNALIST IDEAS—H. Rossiter Snyder—*Rossiter Snyder Pub. Co.,* 40 p., 50c.

Science News Letter, May 16, 1936

Sociology

WHAT WILL SOCIAL SECURITY MEAN TO YOU?—Bion H. Francis and Donald G. Ferguson—*American Institute for Economic Research,* 64 p., $1.

Science News Letter, May 16, 1936

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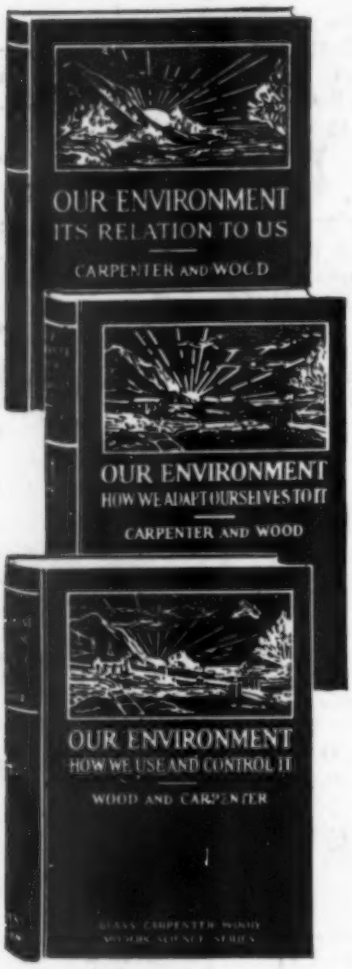
PERIODICAL ROOM MAY 25 1936

SCIENCE

SCIENCE—a seven-letter word—envisions and unfolds a world of magic for students of all ages and particularly for the novice who is just acquiring his introductory knowledge of the miracles that govern and surround his everyday activities.



A proper understanding of Science by young students does not permit of haphazard presentation by the instructor in the classroom. On the contrary two important factors are necessary:—First, ability on the part of the teacher to expound this interesting subject. Second, the proper textbook to crown the work with success.

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